IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of Daines-Martinez et al.	Patent Pending
Serial No.: 10/577,753	Examiner: Mr. Lucas A. Stelling
Filed: April 27, 2006	Group Art Unit: 1797
For: Installation and Method for the Purification of an Aqueous Effluent by Means of Oxidation and Membrane Filtration	Confirmation No.: 2835

Attorney's Docket No: 4195-033

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REPLY BRIEF

In addition to the arguments already submitted by Applicants with the Appeal Brief dated August 26, 2010, Applicants submit this Reply Brief according to the requirements of MPEP § 1208 to address specific points of the Examiner's Answer mailed October 27, 2010. This Reply Brief is timely filed within two months of the Examiner's Answer. While no fees should be required, if any feeds or charges are required, the Commissioner is hereby authorized to charged them to Deposit Account 18-1167.

(I.) ARGUMENT

A. The Reasoning Set Forth for Including a Membrane Filtration Unit in the Mohri Device Fails to Support the Obviousness Rejection

Both independent claims 65 and 70 require a filtration unit to be disposed in the upper portion of a column reactor. The Examiner acknowledges that the primary reference – Mohri – does not disclose the claimed filtration unit. Answer, p. 5. Instead, the Examiner cites Rytter for the teaching of using a filtration unit to separate a catalyst from treated water. Accordingly, the Examiner suggests that it would be obvious to include a filtration unit in the Mohri reactor to retain the activated carbon particles in the reactor and prevent the particles from exiting the reactor with the treated fluid. Answer, p. 6.

As described in the Appeal Brief, Mohri describes in great detail a process for completely retaining the activated carbon particles within the reactor. In particular, Mohri describes that by using a packing material having a specific pore size, the activated carbon particles are completely retained within the reactor and will not flow out of the reactor with the treated fluid. The complete retention of the activated carbon particles within the reactor occurs by simply following Mohri's instructions regarding the packing material. *See*, Mohri, col. 6, lines 24-27and 55-59. Thus, one of ordinary skill in the art would find it completely unnecessary to add a filtration unit to the Mohri reactor for the purpose of preventing the activated carbon particles from flowing out of the reactor. If one of ordinary skill in the art sought teachings on how to retain the activated carbon particles within the Mohri reactor, one would not have to look outside of the teachings of Mohri itself. Thus, the specific teachings of Mohri undermine the very

reason proffered by the Examiner as to why a person of ordinary skill would have included a filtration unit in the Mohri reactor.

However, the Examiner asserts that it would be obvious to include a filtration unit in the Mohri reactor "so that the activated carbon does not fly out under any circumstances." Answer, p. 17. Thus, the Examiner finds that adding a filtration unit to Mohri to prevent any activated carbon particles from unexpectedly and inadvertently flowing out of the reactor. However, without supporting evidence, it is improper to base an obviousness rejection on mere speculation that the process described in Mohri would not function as described. That is, the Examiner has improperly based the obviousness rejection on the mere speculation that Mohri's process would not completely retain the activated carbon particles within the reactor. This is in direct contradiction to the teachings of Mohri. Obviousness cannot be based on speculation or on the proposition that through inadvertence a process might not work as intended.

B. The Reasoning Set Forth for Modifying the Rytter Filtration Unit to be a Membrane Filter Fails to Support the Obviousness Rejection

Claims 65 and 70 further require that the filtration unit in the column reactor be a membrane filtration unit. The Examiner recognizes that even if the filtration unit of Rytter were included in the Mohri reactor, such filtration unit is not a membrane filtration unit, as claimed. The Examiner explains that although Rytter does not teach a membrane filter, Rytter does provide a teaching of how to select a filter. Answer, p. 18. Accordingly, the Examiner concludes that in light of the teachings of Rytter, one of ordinary skill in the art would select the membrane filters described in Cote for use in

the Mohri reactor to retain the activated carbon particles within the reactor. Answer, p. 18.

However, even if it would be obvious to include a filter in the Mohri reactor – which Applicants submit that it is not – Rytter does not provide the broad teaching that any type of membrane can be used for any purpose. Rather, the teachings of Rytter are limited to providing a filter that has a maximum pore size that is of the same order of magnitude as the catalyst particle size. Rytter, col. 3, lines 10-17.[1] For example, Rytter describes the use of a filter having a 20 μm pore size to filter catalyst having a size between 30 μm and 150 μm from a treated fluid. This allows a product produced in the fluid in the Rytter reactor to pass through the filter and prevents the catalyst from passing through the filter. However, nothing in Mohri describes that a product is formed in the waste water during treatment and should be allowed to exit the reactor along with the treated water. Rather, the process of Mohri is focused on removing compounds from the water. Thus, one of ordinary skill in the art would not include a filter having a pore size which allows for the passage of products formed in the Mohri reactor while simultaneously preventing the activated carbon particles from exiting the reactor. Accordingly, the instructions described in Rytter for selecting a filter are not applicable to the process described in Mohri, as suggested by the Examiner.

Further, even if one of ordinary skill in the art used the instructions provided by Rytter for selecting a filter for use in the Mohri reactor, the instructions of Rytter would not lead one of ordinary skill in the art to choose the membranes described in Cote. As

[1] In particular, Rytter teaches using a filter with the specified pore size will allow certain products within the liquid to pass through the filter without allowing the catalyst to pass through the filter. The Rytter filter is not attempting to prevent all particles from the liquid.

stated above, the teachings of Rytter are limited to choosing a filter having a pore size on the same order of magnitude as the catalyst in a reactor. Thus, because Mohri describes that the size of its catalyst - activated carbon particles - is between 0.1 mm and 8 mm or (10^{-4} m and 8^{-3} m), based on the teachings of Rytter, one of ordinary in the art would only select a filter having a pore size within this order of magnitude. However, nothing in Cote describes that its membranes have a pore size on the same order of magnitude as the size of the activated carbon particles used in the Mohri reactor. Further, one of ordinary skill in the art understands that the pore size of the membrane used in Cote is most likely several orders of magnitude smaller than the size of the activated carbon particles used in Mohri. For example, one of ordinary skill in the art understands that micro-filtration membranes have a pore size of 0.1 μm to 10 μm (or 10^{-7} m to 10^{-5} m). Ultra-filtration membranes have even a smaller pore size. Thus, based on the teachings of Rytter, Cote's membrane would be inappropriate for use in the Mohri reactor. Accordingly, the Examiner's reasoning for relying on the teachings of Rytter to select the membrane described in Cote is improper.

C. One of Ordinary Skill in the Art would Not Include the Recirculation Line of Allen in the Mohri Reactor.

Claim 65 requires "bypassing the immersed membrane filtration unit with at least a...portion of the treated water such that the...portion of the treated water is non-permeated treated water." In addition, the claim requires "recirculating at least a portion of the non-permeated treated water...through a recirculation line." Claim 70 also requires a recirculation line operative to recirculate non-permeated treated water. The

Examiner finds that it would have been obvious to include Allen's recirculation line in the Mohri reactor having a filtration membrane to increase "reactor efficiency by allowing the reactor to run at higher flow velocities by allowing multiple passes of slurry through the reactor..." Answer, p. 19. However, Mohri specifically teaches against increasing the flow velocity of the waste water flowing through the reactor. In particular, Mohri describes that the waste water should have a linear velocity of between 0.1 and 6 cm/sec so that the waste water is constantly in contact with the activated carbon particles. Mohri, col. 4, lines 30-36. Increasing the linear velocity of the waste water through the reactor may disturb the fluidized layer of the activated carbon particles and decrease the contact area between the waste water and the activated carbon particles. Thus, the reasoning set forth to modify Mohri to include the recirculation line is improper.

For reasons set forth herein, and in Applicants' Appeal Brief, the Board is respectfully requested to reverse the final rejections.

Respectfully submitted,

COATS & BENNETT, P.L.L.C.

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Kathleen A. Cavanagh
Registration No.: 59,911

1400 Crescent Green, Suite 300
Cary, NC 27518
Telephone: (919) 854-1844
Facsimile: (919) 854-2084